



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/253,245	02/19/1999	GARY ALLAN HARPELL	30-4496	5377

7590 01/23/2003  
VIRGINIA S ANDREWS  
ALLIEDSIGNAL INC  
P O BOX 31  
PETERSBURG, VA 23804

EXAMINER

COLE, ELIZABETH M

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 01/23/2003

2/3

Please find below and/or attached an Office communication concerning this application or proceeding.

A2-23

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/253,245	HARPELL ET AL.	
	Examiner	Art Unit	
	Elizabeth M Cole	1771	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 November 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19-23, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-23, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____ |
|--|---|

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 24-25 have been renumbered as 27-28.

2. Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 7-8 recite "molecular weight" with regard to polyethylene. This renders these claims indefinite because it is not clear whether this is referring to weight average or number average molecular weight.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-17, 19-23, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schirtzinger, U.S. Patent No. 3,686,048 in view of WO 91/08895 to Li et al. Schirtzinger discloses a material as set forth above. Schirtzinger differs from the claimed material because Schirtzinger et al does not teach the other types of fibers claimed and because Schirtzinger does not teach the claimed ratio of matrix to fibers or the size of the matrix islands. With regard to the types of fibers, Li et al teaches that fibers such as high molecular weight polyethylene, high molecular weight polypropylene and aramid fibers are equivalent to glass fibers for preparing

composite materials. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed fibers such as high molecular weight polyethylene or polypropylene or aramid fibers instead of the glass fibers in the material of Schirtzinger. One of ordinary skill in the art would have been motivated to employ the fibers of Li in the material of Schirtzinger since the fibers are taught as being useful in forming composite materials. Since Li teaches the same fibers as the claimed fibers, the fibers of Li would inherently possess the claimed properties such as tenacity and modulus. With regard to the amount of resin employed, although Schirtzinger does not specify the amount, Schirtzinger clearly teaches that enough resin should be used to form a strong fiber array without employing excess resin which would prevent the passage of the resin which is used to form the composite material from fully penetrating the fiber array. See col. 4, lines 23-56. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the amount of resin employed to form the resin bridges through the process of routine experimentation so that an optimum amount of resin was used which allowed for both the formation of a strong array of fibers and the fully impregnation of the fiber array with the resin used to make the composite material.

5. The Declaration under 37 CFR 1.132 filed 5/23/02 is insufficient to overcome the rejection of claims 7-8 based upon 112 2nd paragraph as set forth in the last Office action because: although the Declaration asserts that number average molecular weights cannot be measured for polyethylenes in the "ultra-high molecular weight" category and that it violates standard terminology in the area to refer to such polymers as having a number average molecular weight, the term number average molecular weight is used for polyethylenes in the ultra-high molecular weight category, as shown by U.S. Patent No. 5,558,448 to Yabe et al, (see col. 3,

lines 31-42) and U.S. Patent No. 6,202,726 to Corvasce et al, (see 2, lines 55-62). Therefore, this grounds of rejection has been maintained.

6. Applicant's arguments filed 11/20/02 have been fully considered but they are not persuasive. With regard to the art rejection, Applicant argues that Schirtzinger teaches resin impregnation of the fiber array in contrast to the present invention which is the preparation of composites. However, Schirtzinger recognizes the amount of resin as being a result effective variable. Schirtzinger recognizes that the amount of resin is related to the strength of the overall fibrous material. Therefore, it would have been obvious to have selected the proportions of resin through the process of routine experimentation in order to arrive at a fibrous material having the desired strength, depending upon the final use of the composite material. With regard to the 112 2nd paragraph rejection, Applicant argues that the manufacturers of the polymers cited in US patents 5,558,448 and 6,202,726 employ the term 'molecular weight' in their brochures. However, the more specific designation of number average molecular weight is employed in the patent documents. The fact that the brochures do not employ the term "number average" is not relevant as these brochures are not subject to 35 USC 112.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

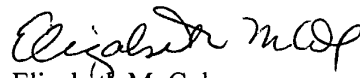
will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (703) 308-0037. The examiner may be reached between 6:30 AM and 5:00 PM Monday through Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (703) 308-2414.

Inquiries of a general nature may be directed to the Group Receptionist whose telephone number is (703) 308-0661.

The fax number for official faxes is (703) 872-9310. The fax number for official after final faxes is (703) 872-9311. The fax number for unofficial faxes is (703) 305-5436.



Elizabeth M. Cole  
Primary Examiner  
Art Unit 1771

e.m.c  
January 21, 2003